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PATENT ABSTRACTS OF JAPAN

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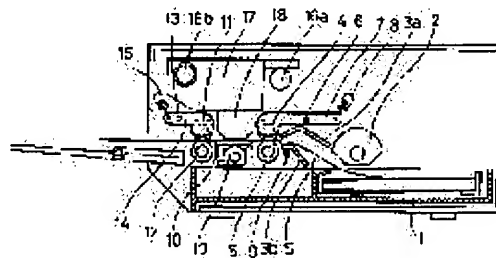
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(54) IMAGE FORMING DEVICE

(57)Abstract:

PURPOSE: To prevent fouling of a sheet due to contact of the sheet with a recording head in a recording unit and failure of the head by allowing projections produced due to elongation of the sheet after formation of an image to enter below a sheet support surface of support means.

CONSTITUTION: An uppermost one of sheets S charged in a cassette 1 is fed between sheet guides 3a, 3b by a pickup roller 2, and a tip end of the sheet S is interposed between a pair of conveying rollers 4, 5 to be conveyed. The conveying roller 4 is biased by a spring 8 through a pressing plate 7, of which pivot is a shaft 6, to be drivingly rotated by the lower conveying roller 5, which drivingly rotates. A pair of discharge rollers 11, 12 are arranged downstream of a platen 10, which serves as support means, to interpose therebetween the sheet S for conveying. In this case, a multiplicity of holes of two kinds are formed on a sheet support surface (upper surface) of the platen 10 to extend in a sheet conveying direction and in a sheet widthwise direction, thus allowing projections produced due to elongation of the sheet after recording to enter downward of the support surface.



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CLAIMS

[Claim(s)]

[Claim 1] Image formation equipment characterized by constituting so that the heights produced by the elongation of the web material after image formation may be made to invade into the sheet back-face lower part of the aforementioned support means in the image formation equipment which has a conveyance means to convey a web material, a record means to form a picture in this web material, and the support means that support a web material in the opposite position of this record means.

[Claim 2] Image formation equipment according to claim 1 characterized by establishing many first hole for making the heights produced by the elongation of the aforementioned web material invade into a sheet back-face lower part, and second hole for making the aforementioned web material adsorb in the sheet back face of the aforementioned support means.

[Claim 3] Image formation equipment according to claim 1 characterized by establishing many hollows for making the heights produced by the elongation of the aforementioned web material invade into a sheet back-face lower part, and holes for making the aforementioned web material adsorb in the sheet back face of the aforementioned support means.

[Claim 4] Image formation equipment according to claim 3 characterized by establishing many holes for making the aforementioned web material adsorb in the base of the aforementioned hollow.

[Claim 5] The first hole of the above or a hollow is image formation equipment according to claim 2 to 4 characterized by being formed in the direction parallel to the sheet conveyance direction for a long time.

[Claim 6] The first hole of the above or a hollow is image formation equipment according to claim 5 characterized by being arranged in pitches [direction / perpendicular to the sheet conveyance direction].

[Claim 7] The first hole of the above or a hollow is image formation equipment according to claim 6 characterized by being prepared throughout the recording width in the sheet back face of support means.

[Claim 8] The first hole of the above or a hollow is image formation equipment according to claim 2 to 4 characterized by being arranged so that the ends edge of a web material parallel to the sheet conveyance direction may not serve as a homotopic.

[Claim 9] The aforementioned image formation equipment is image formation equipment according to claim 2 to 4 characterized by having the adsorption means for drawing a web material in the sheet back face of the aforementioned support means.

[Claim 10] The aforementioned adsorption means is image formation equipment according to claim 9 characterized by weakening an adsorption power at the time of sheet conveyance, and strengthening an adsorption power at the time of image formation.

[Claim 11] Image formation equipment according to claim 10 characterized by using the suction fan or the suction pump as the aforementioned adsorption means.

[Claim 12] Image formation equipment according to claim 9 to 11 characterized by having plugged up two or more holes established in the sheet back face of the aforementioned support means with the ink capture member which captures an ink drop through air from the lower part side.

[Claim 13] Image formation equipment according to claim 12 characterized by using sponge as an ink capture member.

[Claim 14] Image formation equipment according to claim 1 to 13 characterized by being the ink-jet recording method by which the aforementioned record means records by breathing out ink according to a signal.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention relates to the image formation equipment which forms a picture in a web material by the record means.

[0002]

[Description of the Prior Art] Before, especially, image formation equipment equipped with various recording methods is put in practical use, and an ink-jet recording method, thermal recording, etc. are comparatively cheap, and from eye a possible hatchet and a personal youth to office use, a miniaturization and ****-ization are various and are used. It is common to move a record medium relatively to the Records Department in equipment (recording head), and to perform image recording with image formation equipment equipped with these recording methods. for example, the sheet S sent out with the pickup roller 51 by the printer of a serial scanning method using the ink-jet recording method etc. as shown in drawing 9 -- the order on a platen 52 -- a conveyance roller pair -- it is pinched with 53 and the eccrisis roller 54, the carriage 56 which carried the recording head 55 carries out a scan crosswise [sheet], and record is performed and the above-mentioned sheet S -- the above-mentioned roller pair -- fixed quantity delivery is carried out by 53 and 54, and it is recorded one by one, and after record is completed, it is discharged by eccrisis roller pair 54 out of equipment

[0003] the above-mentioned sheet S -- after record -- the Records Department -- elongation -- being generated -- a conveyance roller pair -- 53 and an eccrisis roller pair -- it slackens between [L] 54 If the amount of floats of the sheet S by this slack (the thickness of a sheet is included) becomes larger than the interval t of the recording head 55 and the platen 52 upper surface in the Records Department (it is usually set as 1mm or less), this sheet S and a recording head 55 will contact, and the problem that Sheet S becomes dirty or a recording head 55 is damaged will arise. In addition, like a color-print, this problem tends to occur, when there are many amounts of records (the elongation of a sheet is large).

[0004] then, the thing [which formed the adsorption meanses 57, such as a fan and a pump, in the platen 52 as a method for solving the above-mentioned problem conventionally in order to stick Sheet S on the platen 52 upper surface] (refer to drawing 10), or Records Department order -- a sheet presser foot -- what formed the member 58 (refer to drawing 11) is carried out Furthermore, there is the method of using the special paper in which the interval t of a recording head 55 and the platen 52 upper surface is enlarged, or it is extended even if the amount of records is large, and an amount has water absorption layers, such as small coat paper.

[0005]

[Problem(s) to be Solved by the Invention] however, the above-mentioned conventional example -- like -- the adsorption means 57 and a sheet presser foot, even if it uses a member 58 As the heights (float of a sheet) produced by the elongation after record of this sheet show drawing 12 in the case of a sheet with the large amounts of elongation, such as a regular paper without a water absorption layer, more than one will be formed. There are heights (at drawing 12, maximum is 0.74mm) of the height more than the interval t on a recording head and the upper surface of a platen (drawing 12 t=0.7 mm) in inside, the heights and the recording head of this sheet contact and there is a possibility that a sheet may become dirty or a recording head may be damaged.

[0006] Furthermore, since the concavo-convex section (refer to drawing 12) by the elongation after record though the interval t on a recording head and the upper surface of a platen is greatly set up so that the above-mentioned contact may not arise exists, the ink breathed out by this concavo-convex section from the recording head becomes uneven on the recording surface of a sheet, and deterioration of quality of image produces the above-mentioned sheet.

[0007] moreover -- the case where the recording width (recording width of the sheet conveyance direction) of one scan is a large printer -- the sheet presser foot before and behind the Records Department -- since the interval of a member becomes large, it becomes impossible to press down the float of the sheet near the Records Department center, and the above-mentioned problem arises similarly

[0008] Moreover, when special papers, such as coat paper, are used, there is a problem that a running cost becomes high.

[0009] Then, the purpose of this invention is to prevent the dirt of the sheet by contact on the recording head and sheet in the Records Department, and breakage of a head.

[0010]

[Means for Solving the Problem] The typical composition of this invention for attaining the above-mentioned purpose In the image formation equipment which has a conveyance means to convey a web material, a record means to form a picture in this web material, and the support means that support a web material in the opposite position of this record means It is characterized by constituting so that the heights produced by the elongation of the web material after image formation may be made to invade into the sheet back-face lower part of the aforementioned support means. Furthermore, the first hole for making the heights produced by the elongation of the aforementioned web material invade into the sheet back face of the aforementioned support means in detail at a sheet back-face lower part. It is characterized by preparing many hollows for making the heights which prepared many second hole for making the aforementioned web material adsorb, or were produced by the elongation of the aforementioned web material in the sheet back face of the aforementioned support means invade into a sheet back-face lower part, and holes for making the aforementioned web material adsorb.

[0011]

[Function] If it is in the above-mentioned composition, it is made to make the heights produced by the elongation of the web material after image formation invade into the sheet back-face lower part of the aforementioned support means. Since many first hole of the above and second hole were specifically established in the sheet back face of support means or many above-mentioned hollows and holes are established in the sheet back face of support means, Contact of a record means and a web material can be prevented and, therefore, the dirt of the web material by this contact, breakage of a record means, etc. can be prevented.

[0012]

[Example] Hereafter, one example of the image formation equipment which applied this invention is concretely explained with reference to a drawing.

[0013] The [1st example] The 1st example of the image formation equipment concerning this invention is explained with reference to a drawing. In addition, in this example, the printer of the ink-jet method in which full color image formation is possible is illustrated as image formation equipment. The cross section in which drawing 1 shows the outline composition of a printer, and drawing 2 are the perspective diagrams of this printer.

[0014] As shown in drawing 1 and drawing 2, the printer bottom is equipped with the cassette 1 which can carry out loading hold of the sheet S of various sizes free [attachment and detachment]. As for the sheet S loaded in this cassette 1, only one sheet of the topmost part is sent into between sheet guide 3a and 3b with a pickup roller 2. although it will stop in the state of **** shown in drawing 1 and the conveyance force will be lost, if this pickup roller 2 makes one revolution -- before it -- the nose of cam of Sheet S -- a conveyance roller pair -- it pinches to 4 and 5 -- having -- coming -- **** -- henceforth -- this conveyance roller pair -- it is conveyed by 4 and 5 Through the pressure plate 7 which uses a shaft 6 as the supporting point, with a spring 8, the conveyance upper roller 4 is pressurized and is rotated in follower with the rotation of the conveyance lower roller 5 which carries out drive rotation. Rotation will be started if, as for this conveyance lower roller 5, the sheet sensor 9 detects a sheet nose of cam.

[0015] moreover -- the downstream of the platen 10 as support means mentioned later -- a discharge roller pair -- 11 and 12 arrange -- having -- **** -- the above-mentioned conveyance roller pair -- the sheet S with which a platen 10 top is sent by 4 and 5 is pinched and conveyed Through the pressure plate 14 which uses a shaft 13 as the supporting point, with a spring 15, the discharge upper roller 11 is pressurized and is rotated in follower with the rotation of the discharge lower roller 12 which carries out drive rotation. Moreover, since the peripheral speed of the discharge lower roller 12 is set as the state where it accelerated several% to the peripheral speed of the above-mentioned conveyance lower roller 5, an always moderate tension is given to the sheet S on a platen 10, and it slackens.

[0016] Along with the guide rails 16a and 16b constructed in the sheet conveyance direction and the crossing direction, the carriage 17 which can move is formed above the above-mentioned platen 10, and the recording head 18 as a record means is carried in this carriage 17. In addition, the recording head 18 in this example is a recording head of the ink-jet method which records by breathing out ink according to a signal, and in order to perform full color image formation, it has the composition that the recording heads 18C, 18M, 18Y, and 18B of four colors of cyanogen (C), a Magenta (M), yellow (Y), and black (B) were installed in the scanning direction (the direction of the arrow in drawing) side by side.

[0017] Moreover, the suction fan 19 is formed as an adsorption means for sticking Sheet S to a platen 10 under the above-mentioned platen 10. In addition, an adsorption means may not be limited to a suction fan and may be a suction pump.

[0018] Next, with reference to drawing 3 and drawing 4, the above-mentioned platen 10 is explained in detail. The upper ** view of the platen which drawing 3 requires for this example, and drawing 4 are drawings showing the measurement result of the amount of floats of the sheet supported by this platen.

[0019] As shown in drawing 3, many two kinds of holes 10a and 10b are established in the sheet back face (upper surface) of the above-mentioned platen 10 over the sheet conveyance direction and the sheet cross direction, and it is constituted so that the heights produced by the elongation of the sheet after record may be made to invade below.

[0020] Hole 10a of the above first is formed in the direction parallel to the sheet conveyance direction for a long time, and the configuration is formed in the symmetrical hexagon to the line parallel to the sheet conveyance direction. Moreover, hole 10a of this first is arranged in pitches [cross direction / sheet / (direction perpendicular to the sheet conveyance direction)] (the inside p1 of drawing, and this example p 1 = 18mm). This is because the heights produced by the elongation of the sheet S after record are formed in the sheet conveyance direction and parallel over the recording-width whole region. In addition, at this example, it is the length L1 of the sheet conveyance direction of first hole 10a. And width of face H1 of the ink delivery of a recording head, abbreviation, etc. are spread and set up, and may be L1=32mm (the maximum length L2 is 46mm) and H1 =9mm.

[0021] Moreover, it is not based on the size of Sheet S, but first hole 10a is side edge S1 -S4 of Sheet S. It is arranged so that it may not become a homotopic. This is sheet side edge S1 -S4 which a float tends to produce in order to prevent that the corner of a sheet enters into first hole 10a, and poor sheet conveyance occurs. It is for strengthening a neighboring suction force.

[0022] It becomes possible like **** to miss the float (heights) to the upper part by the elongation after record of Sheet S under the platen 10 by forming first hole 10a.

[0023] Moreover, it is a circular hole only for suction by the above-mentioned suction fan 19, and second hole 10b is smaller than first hole 10a, and is pitches [direction / sheet conveyance] (the inside p2 of drawing, and this example p2=5.2 mm), and is arranged in pitches / cross direction / sheet] (the inside p3 of drawing, and this example p 3 = 18mm).

[0024] Furthermore, hole 10a of the above first and hole 10b of the above second are arranged by turns in pitches [cross direction / sheet] (the inside p4 of drawing, and this example p 4 = 9mm).

[0025] Drawing 4 is the result of measuring the amount of floats of the sheet at the time of recording with the image formation equipment which has the above-mentioned platen 10. two or more heights produced by the elongation of the sheet after record -- abbreviation -- the same size -- and it has stood in a line under the platen 10 in pitches, such as abbreviation. The pitch of the heights of the lower part of this platen 10 is about 18mm, and it turns out that it has run into first hole 10a. For this reason, the size of the upper heights of a platen 10 is small, and maximum is about about 0.04mm.

[0026] Like ****, by using the platen 10 which has two or more holes 10a and 10b, at the Records Department, contact on a recording head 18 and Sheet S can be avoided, and, therefore, breakage of the dirt of a sheet, a wrinkle, and the ink delivery of a recording head and generating with poor ink **** by it can be prevented.

[0027] The [2nd example] Next, the 2nd example of the image formation equipment concerning this invention is explained with reference to drawing 5. In addition, since the outline composition of the image formation equipment except a platen is the same as that of the example mentioned above, detailed explanation is omitted here. Drawing 5 is the upper ** view and X-X cross section of a platen concerning this example.

[0028] As shown in drawing 5, many two kinds of holes 20a and 20b are established in the sheet back face like the example mentioned above, and sponge 20c has pasted up the platen 20 as support means concerning this example so that the above-mentioned holes 20a and 20b may be plugged up from the lower part of this platen 20. In addition, since the conditions of the pitch of the above-mentioned holes 20a and 20b, width of face, length, an arrangement position, etc. are the same as that of the example mentioned above and abbreviation, detailed explanation is omitted here.

[0029] Although the holes 20a and 20b established in the above-mentioned platen 20 are required in order to miss below the heights produced by the elongation of the sheet S after record or to adsorb Sheet S, as mentioned above, since they also become the entrance where the ink of the Myst state generated at the time of record reaches an adsorption means, there is a possibility of having a bad influence on this adsorption means. For example, when the suction fan 19 (refer to drawing 1 and drawing 2) is used as an adsorption means and the ink of the Myst state reaches the suction fan 19, the ink of the Myst state will invade into bearing of this fan's 19 driving shaft, and the suction fan's 19 normal operation and normal endurance will be spoiled. In addition, the same thing can be said when this adsorption means is a suction pump.

[0030] Then, in order to prevent invasion of the ink of the Myst state from two or more holes 20a and 20b established in the above-mentioned platen 20, the above-mentioned sponge 20c is pasted up so that the above-mentioned holes 20a and 20b may be plugged up from the lower part of a platen 20. Many openings are arranged at random, and since it has been hard coming to pass ink, this sponge 20c is suitable as an ink capture member which air passes and captures ink. In addition, the above-mentioned ink capture member is not limited to sponge.

[0031] Moreover, it was the same as that of the example which mentioned above the effect over float prevention of a sheet also by the platen 20 of this example.

[0032] The [3rd example] Next, the 3rd example of the image formation equipment concerning this invention is explained with reference to drawing 6. In addition, since the outline composition of the image formation equipment except a platen is the same as that of the example mentioned above, detailed explanation is omitted here. Drawing 6 is the upper ** view and Y-Y cross section of a platen concerning this example.

[0033] As shown in drawing 6, the platen 21 as support means concerning this example is considering as the composition which prepared much hole 21b and hollow 21a of a large number which became depressed in this sheet back-face lower part in the sheet back face, and is taken as the composition which established many holes 21a1 in the base of the aforementioned hollow 21a further. In addition, since the conditions of the pitch of the above-mentioned hollow and a hole, width of face, length, an arrangement position, etc. are the same as that of the example mentioned above and abbreviation, detailed explanation is omitted here.

[0034] It became depressed in the above-mentioned platen 21, 21a was prepared for reducing that the ink of the Myst state invades into an adsorption means at the time of record, and the hole 21a1 was established in the base of this hollow 21a for preventing the fall of the sheet suction force by the aforementioned adsorption means.

[0035] In addition, as for formation of the above-mentioned hollow 21a, it is good to perform welding of spinning or another member, adhesion, etc. Moreover, it was the same as that of the example which mentioned above the effect over float prevention of a sheet also by the platen 21 of this example.

[0036] The [4th example] Next, the 4th example of the image formation equipment concerning this invention is explained with reference to drawing 7 and drawing 8. In addition, since the outline composition of the image formation equipment containing a platen is the same as that of the example mentioned above, detailed explanation is omitted here. Drawing showing the result which measured the amount of floats after records (regular paper etc.) of a sheet with thin drawing 7, and drawing 8 are drawings showing the result which measured the amount of floats after record of thick sheets (postcard etc.).

[0037] It turns out that the direction of a thin sheet (refer to drawing 7) has the large amount of floats to the sheet back-face lower part of a platen (amount by which the sheet was drawn in the sheet back-face lower part of a platen) compared with a thick sheet (refer to drawing 8) so that it may understand, even if it sees drawing 7 and drawing 8. Therefore, since it will move while the float to the lower part of the above-mentioned sheet contacts the appearance portion of a hole in a size as it is if the sheet suction force of an adsorption means is kept strong at the time of conveyance of a thin sheet and sheet conveyance (fixed quantity delivery of the following time) is performed at it, a conveyance load increases compared with a thick sheet. That is, if sheet conveyance is performed not being concerned with the thickness of a sheet but changing the sheet suction force by the adsorption means into the same state, a difference will arise in the feed per revolution of a thin sheet and a thick sheet. Although establishing the mechanism in which a feed per revolution is convertible as a method of solving this problem according to the thickness of a sheet is also considered, there is a problem of becoming a cost rise.

[0038] Then, in this example, the sheet suction force of an adsorption means is changed in the time of sheet conveyance and record, the amount of floats to the lower part of the above-mentioned sheet is changed, and it is made to make small the difference of the feed per revolution at the time of sheet conveyance with a thin sheet and a thick sheet. Specifically, current value which makes the suction fan as an adsorption means drive is enlarged at the time of record, and it is made to make it small at the time of sheet conveyance. Thereby, the feed per revolution at the time of sheet conveyance is not concerned with the thickness of this sheet, but serves as abbreviation regularity.

[0039]

[Effect of the Invention] By constituting so that the heights produced by the elongation of the sheet after record may be made to invade into the sheet back-face lower part of a platen as explained above By considering as the composition which specifically established many first hole for a sheet invasion, and second hole for sheet adsorption in the sheet back face of a platen, or established many hollows for a sheet invasion, and holes for sheet adsorption in the sheet back face of a platen The ink regurgitation side of a recording head and contact of a sheet can be prevented, and, therefore, breakage of the dirt of the

sheet by this contact, a wrinkle, and the ink delivery of a recording head, generating with the ink regurgitation poor by that cause, etc. can be prevented.

[0040] Moreover, invasion of ink Myst can be prevented, without reducing the sheet suction force of the adsorption means for sticking a sheet to a platen by plugging up two or more holes established in the sheet back face of the aforementioned platen with the ink capture members (for example, sponge etc.) which capture an ink drop through air from a lower part side.

[0041] Moreover, by weakening a suction force at the time of sheet conveyance, and strengthening a suction force at the time of record, can realize float prevention of the sheet for which the high adsorption capacity force is needed, and coexistence of highly precise fixed quantity delivery, use of a regular paper is attained further, and the aforementioned adsorption meanses (for example, a suction fan, a suction pump, etc.) can reduce a running cost.

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TECHNICAL FIELD

[Industrial Application] this invention relates to the image formation equipment which forms a picture in a web material by the record means.

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PRIOR ART

[Description of the Prior Art] Before, especially, image formation equipment equipped with various recording methods is put in practical use, and an ink-jet recording method, thermal recording, etc. are comparatively cheap, and from eye a possible hatchet and a personal youth to office use, a miniaturization and ****-ization are various and are used. It is common to move a record medium relatively to the Records Department in equipment (recording head), and to perform image recording with image formation equipment equipped with these recording methods. for example, the sheet S sent out with the pickup roller 51 by the printer of a serial scanning method using the ink-jet recording method etc. as shown in drawing 9 -- the order on a platen 52 -- a conveyance roller pair -- it is pinched with 53 and the eccrisis roller 54, the carriage 56 which carried the recording head 55 carries out a scan crosswise [sheet], and record is performed and the above-mentioned sheet S -- the above-mentioned roller pair -- fixed quantity delivery is carried out by 53 and 54, and it is recorded one by one, and after record is completed, it is discharged by eccrisis roller pair 54 out of equipment

[0003] the above-mentioned sheet S -- after record -- the Records Department -- elongation -- being generated -- a conveyance roller pair -- 53 and an eccrisis roller pair -- it slackens between [L] 54 If the amount of floats of the sheet S by this slack (the thickness of a sheet is included) becomes larger than the interval t of the recording head 55 and the platen 52 upper surface in the Records Department (it is usually set as 1mm or less), this sheet S and a recording head 55 will contact, and the problem that Sheet S becomes dirty or a recording head 55 is damaged will arise. In addition, like a color-print, this problem tends to occur, when there are many amounts of records (the elongation of a sheet is large).

[0004] then, the thing [which formed the adsorption meanses 57, such as a fan and a pump, in the platen 52 as a method for solving the above-mentioned problem conventionally in order to stick Sheet S on the platen 52 upper surface] (refer to drawing 10), or Records Department order -- a sheet presser foot -- what formed the member 58 (refer to drawing 11) is carried out Furthermore, there is the method of using the special paper in which the interval t of a recording head 55 and the platen 52 upper surface is enlarged, or it is extended even if the amount of records is large, and an amount has water absorption layers, such as small coat paper.

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EFFECT OF THE INVENTION

[Effect of the Invention] It constitutes so that the heights produced by the elongation of the sheet after record may be made to invade into the sheet back-face lower part of a platen as explained above. By considering as the composition which specifically established many first hole for sheet invasion, and second hole for sheet adsorption in the sheet back face of a platen, or established many hollows for sheet invasion, and holes for sheet adsorption in the sheet back face of a platen Ink ***** of a recording head and contact of a sheet can be prevented, and, therefore, breakage of the dirt of the sheet by this contact, a wrinkle, and the ink delivery of a recording head, generating with ink **** poor by that cause, etc. can be prevented.

[0040] Moreover, invasion of ink Myst can be prevented, without reducing the sheet suction force of the adsorption means for sticking a sheet to a platen by plugging up two or more holes established in the sheet back face of the aforementioned platen with the ink capture members (for example, sponge etc.) which capture an ink drop through air from a lower part side.

[0041] Moreover, by weakening a suction force at the time of sheet conveyance, and strengthening a suction force at the time of record, can realize float prevention of the sheet for which the high adsorption capacity force is needed, and coexistence of highly precise fixed quantity delivery, use of a regular paper is attained further, and the aforementioned adsorption meanses (for example, a suction fan, a suction pump, etc.) can reduce a running cost.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] however, the above-mentioned conventional example -- like -- the adsorption means 57 and a sheet presser foot, even if it uses a member 58 As the heights (float of a sheet) produced by the elongation after record of this sheet show drawing 12 in the case of a sheet with the large amounts of elongation, such as a regular paper without a water absorption layer, more than one will be formed. There are heights (at drawing 12, maximum is 0.74mm) of the height more than the interval t on a recording head and the upper surface of a platen (drawing 12 $t=0.7$ mm) in inside, the heights and the recording head of this sheet contact and there is a possibility that a sheet may become dirty or a recording head may be damaged.

[0006] Furthermore, since the concavo-convex section (refer to drawing 12) by the elongation after record though the interval t on a recording head and the upper surface of a platen is greatly set up so that the above-mentioned contact may not arise exists, the ink breathed out by this concavo-convex section from the recording head becomes uneven on the recording surface of a sheet, and deterioration of quality of image produces the above-mentioned sheet.

[0007] moreover -- the case where the recording width (recording width of the sheet conveyance direction) of one scan is a large printer -- the sheet presser foot before and behind the Records Department -- since the interval of a member becomes large, it becomes impossible to press down the float of the sheet near the Records Department center, and the above-mentioned problem arises similarly

[0008] Moreover, when special papers, such as coat paper, are used, there is a problem that a running cost becomes high.

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MEANS

[Means for Solving the Problem] The typical composition of this invention for attaining the above-mentioned purpose In the image formation equipment which has a conveyance means to convey a web material, a record means to form a picture in this web material, and the support means that support a web material in the opposite position of this record means It is characterized by constituting so that the heights produced by the elongation of the web material after image formation may be made to invade into the sheet back-face lower part of the aforementioned support means. Furthermore, the first hole for making the heights produced by the elongation of the aforementioned web material invade into the sheet back face of the aforementioned support means in detail at a sheet back-face lower part, It is characterized by preparing many hollows for making the heights which prepared many second hole for making the aforementioned web material adsorb, or were produced by the elongation of the aforementioned web material in the sheet back face of the aforementioned support means invade into a sheet back-face lower part, and holes for making the aforementioned web material adsorb.

[Translation done.]

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OPERATION

[Function] If it is in the above-mentioned composition, the heights produced by the elongation of the web material after image formation are made to invade into the sheet back-face lower part of the aforementioned support means. Since it carried out, and many first hole of the above and second hole were specifically established in the sheet back face of support means or many above-mentioned hollows and holes are established in the sheet back face of support means, contact of a record means and a web material can be prevented and, therefore, the dirt of the web material by this contact, breakage of a record means, etc. can be prevented.

[Translation done.]

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EXAMPLE

[Example] Hereafter, one example of the image formation equipment which applied this invention is concretely explained with reference to a drawing.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

- [Drawing 1] It is the cross section showing the outline composition of a printer.
[Drawing 2] It is the perspective diagram of this printer.
[Drawing 3] It is the upper ** view of the platen concerning the 1st example.
[Drawing 4] It is drawing showing the measurement result of the amount of floats of the sheet supported by this platen.
[Drawing 5] It is the upper ** view and X-X cross section of a platen concerning the 2nd example.
[Drawing 6] It is the upper ** view and Y-Y cross section of a platen concerning the 3rd example.
[Drawing 7] It is drawing showing the result which measured the amount of floats after record of a thin sheet.
[Drawing 8] It is drawing showing the result which measured the amount of floats after record of a thick sheet.
[Drawing 9] It is the schematic diagram of the conventional printer.
[Drawing 10] It is the perspective diagram of the conventional printer.
[Drawing 11] It is the perspective diagram of the conventional printer.
[Drawing 12] They are the measurement result of the amount of floats of the sheet supported by the platen in the conventional printer, and drawing showing the state.

[Description of Notations]

- 1 -- Cassette
- 2 -- Pickup roller
- 3a, 3b -- Sheet guide
- 4 -- Conveyance upper roller
- 5 -- Conveyance lower roller
- 6 13 -- Shaft
- 7 14 -- Pressure plate
- 8 15 -- Spring
- 9 -- Sheet sensor
- 10 -- Platen
- 10a, 10b -- Hole
- 11 -- Eccrisis upper roller
- 12 -- Eccrisis upper roller
- 16a, 16b -- Guide rail
- 17 -- Carriage
- 18 -- Recording head
- 19 -- Suction fan
- 20 -- Platen
- 20a, 20b -- Hole
- 20c -- Sponge
- 21 -- Platen
- 21a -- Hollow
- 21a1, 20b -- Hole

[Translation done.]

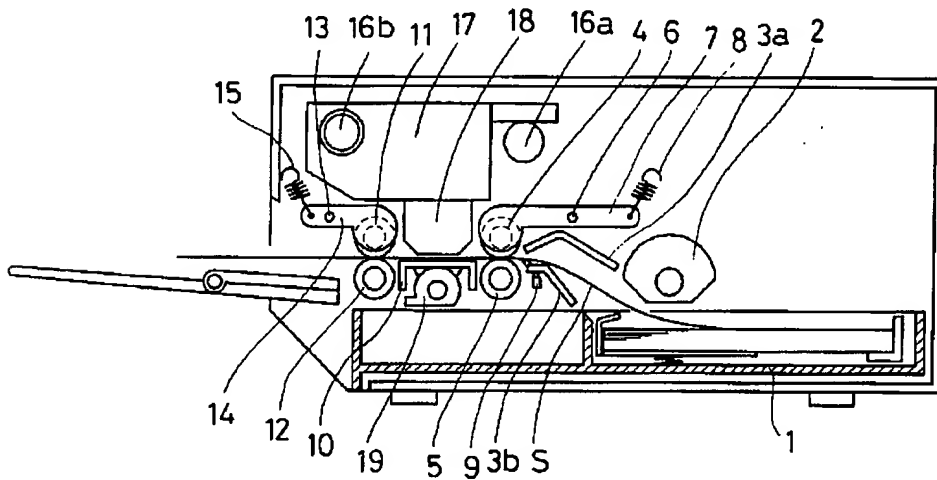
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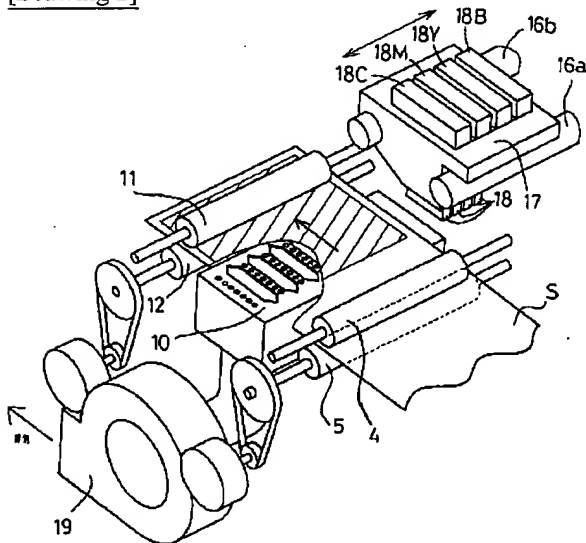
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DRAWINGS

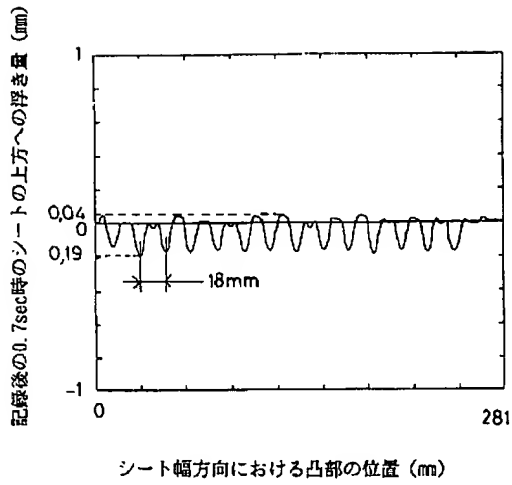
[Drawing 1]



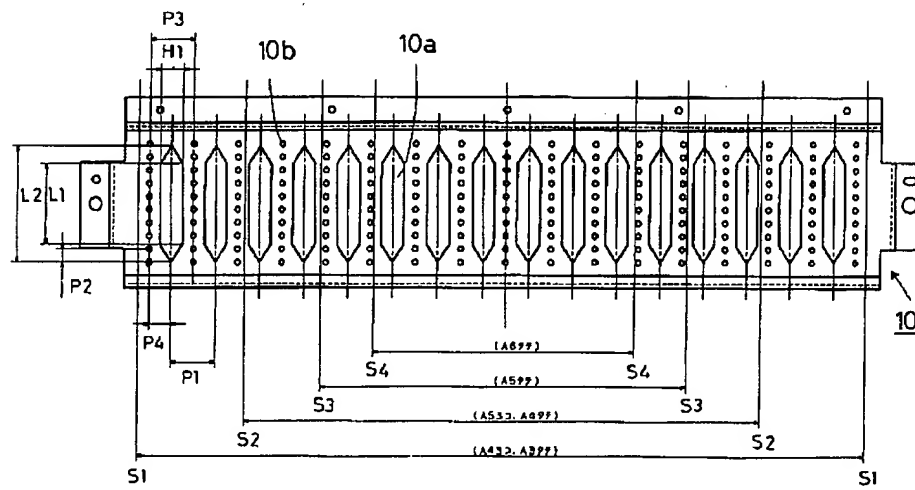
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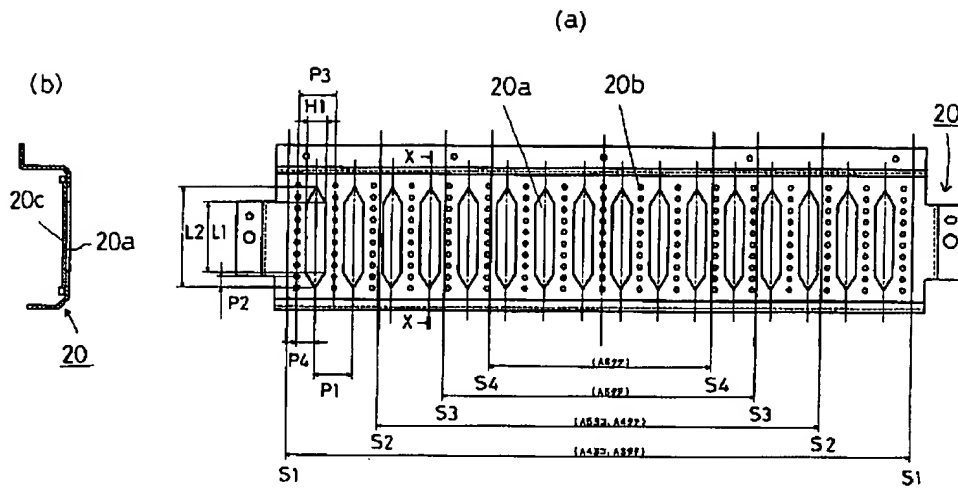
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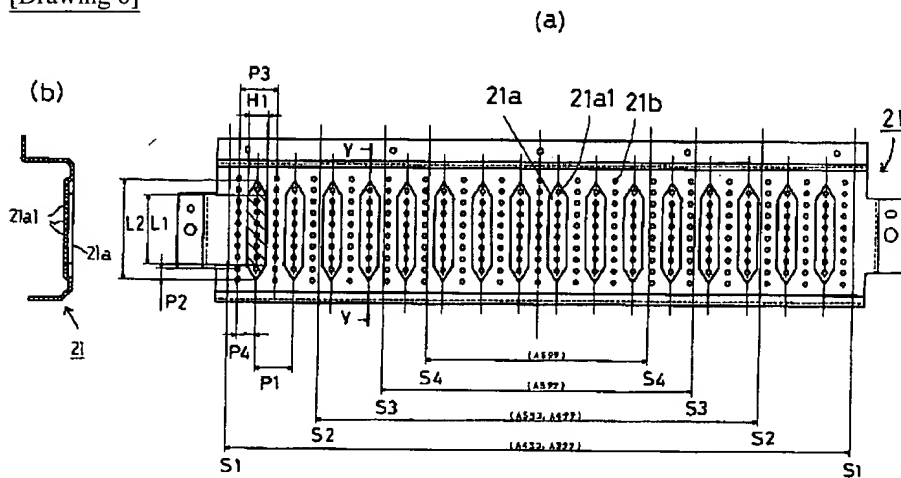
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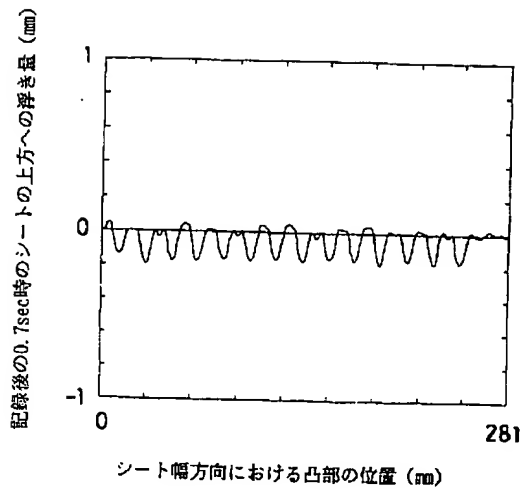
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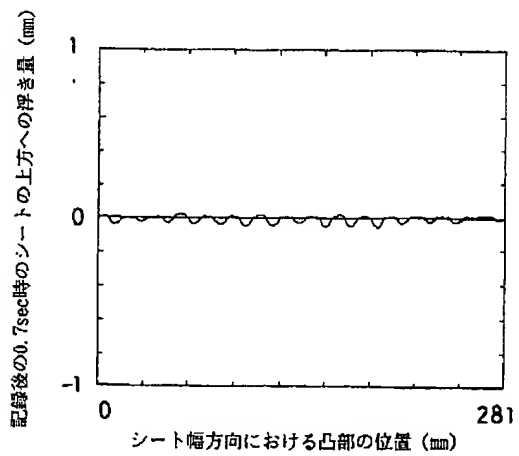
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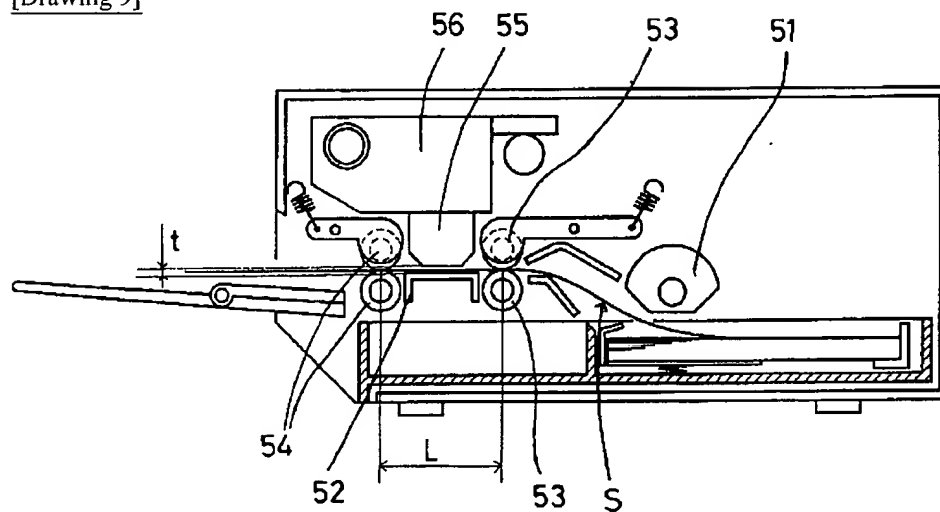
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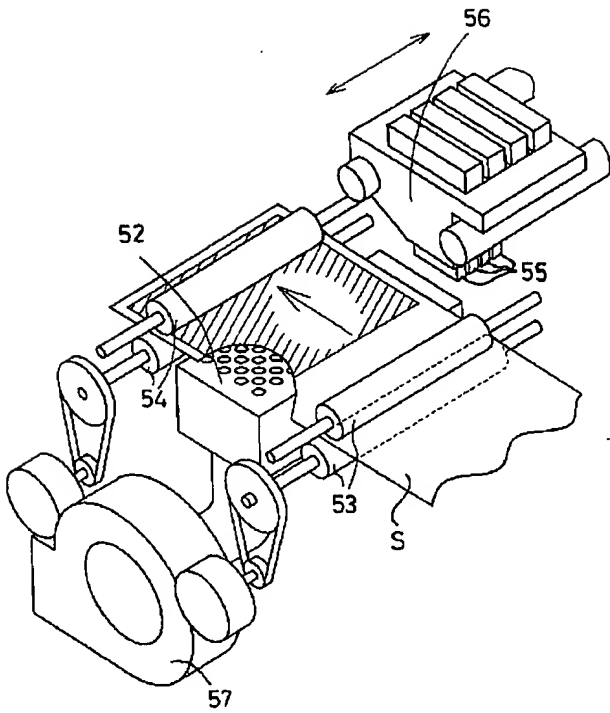
[Drawing 8]



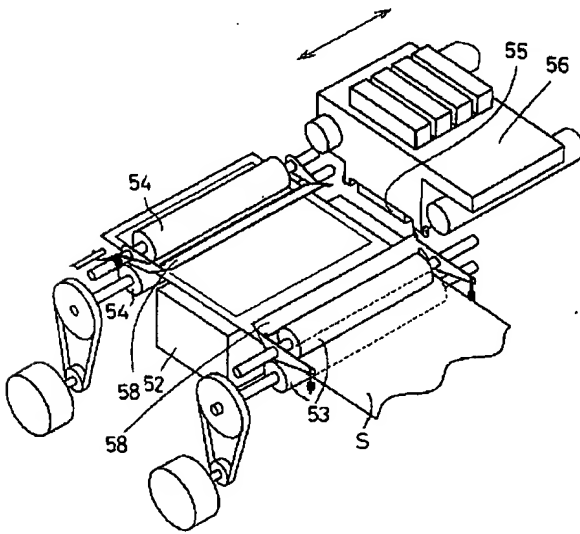
[Drawing 9]



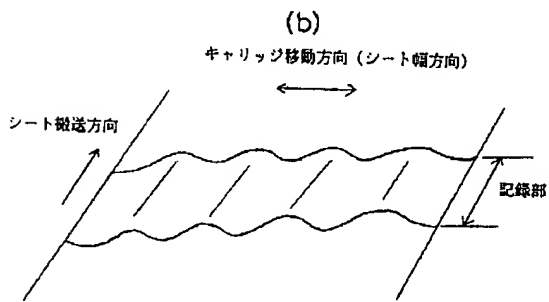
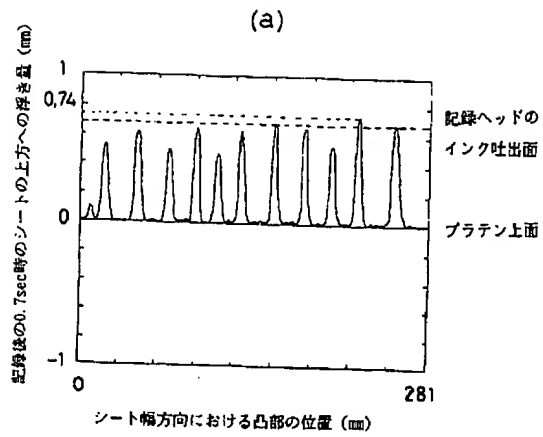
[Drawing 10]



[Drawing 11]



[Drawing 12]



[Translation done.]